Creating and Evaluating the Department of Veterans Affairs Electronic Medical Record and National Clinical Lexicon

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The Decentralized Hospital Computer Program (DHCP) is a clinical information system now installed in 171 Veterans Affairs Medical Centers (VAMCs), 357 outpatient clinics, 163 nursing homes and domiciliary facilities, and dozens of private hospitals. DHCP forms the basis of Finland's national health care computer system. Few systems featuring DHCP's integrated, comprehensive suite of clinical, laboratory, and administrative functions have been successfully implemented in such a broad range of medical practice settings. Thus, DHCP may represent the most successful electronic medical record now in use. This poster is designed to inform medical informaticians who work with electronic records on three important DHCP developments: the new, electronic medical record and its graphical user interface, formative clinical evaluations of this system, and national VA standards for messaging and vocabulary.

The new, graphical clinician interface to the VA electronic medical record is called Order Entry/Results Reporting version 3.0 (OE 3). OE 3 can connect with existing DHCP databases and application programs, including Problem List, Progress Notes, Discharge Summary, Consultations, an expert system, Forum electronic Mail, and Clinical Notifications. The clinical functionality of OE 3 was specified by a national selection of VA clinicians who served on an Expert Panel (EP) empowered by the VA Clinical Applications Requirements Group. Therefore, OE 3 represents a nationally representative, working (not theoretical) synthesis of currently achievable electronic medical records functionality. The client graphical user interface for the OE 3 software is written in Microsoft's Visual Basic for Windows and interfaces to a server running the Massachusetts General Hospital Utility Multi-Programming System (MUMPS). OE 3 runs on a variety of easily and economically scalable hardware platforms, including PC-compatible clients interfaced to Digital Equipment Corporation Alpha reduced instruction set microcomputer servers.

Because inadequate evaluation has been an important explanation for the failure of many past medical informatics systems, the OE 3 software has undergone extensive formative evaluations. The presenters will report on a national series of usability tests of OE 3. In these tests, the subjects were VA clinicians who were tasked to use intermediate prototypes of OE 3 software to accomplish a suite of representative clinical tasks. Persons visiting the poster will be able to participate in "mini-usability tests", where they will review and run several generations of VA usability testing protocols in sequential versions of the VA OE 3 prototype. Written material summarizing the results of the OE 3 usability testing will be provided on the poster and as participant handouts.

Finally, the poster will summarize recent VA advances in adopting national standards for data representation. The summary will cover the design of the HL-7 messaging module in OE 3, and the OE 3 data structures which relate to the national VA Clinical Lexicon. This national Lexicon is based on the UML Metathesaurus. The Lexicon is an integral part of OE 3 and is now being released to VA hospitals to support the VA's Problem List component. The on-line component of the poster session will allow walk-up users to test the VA Clinical Lexicon's functionality.

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